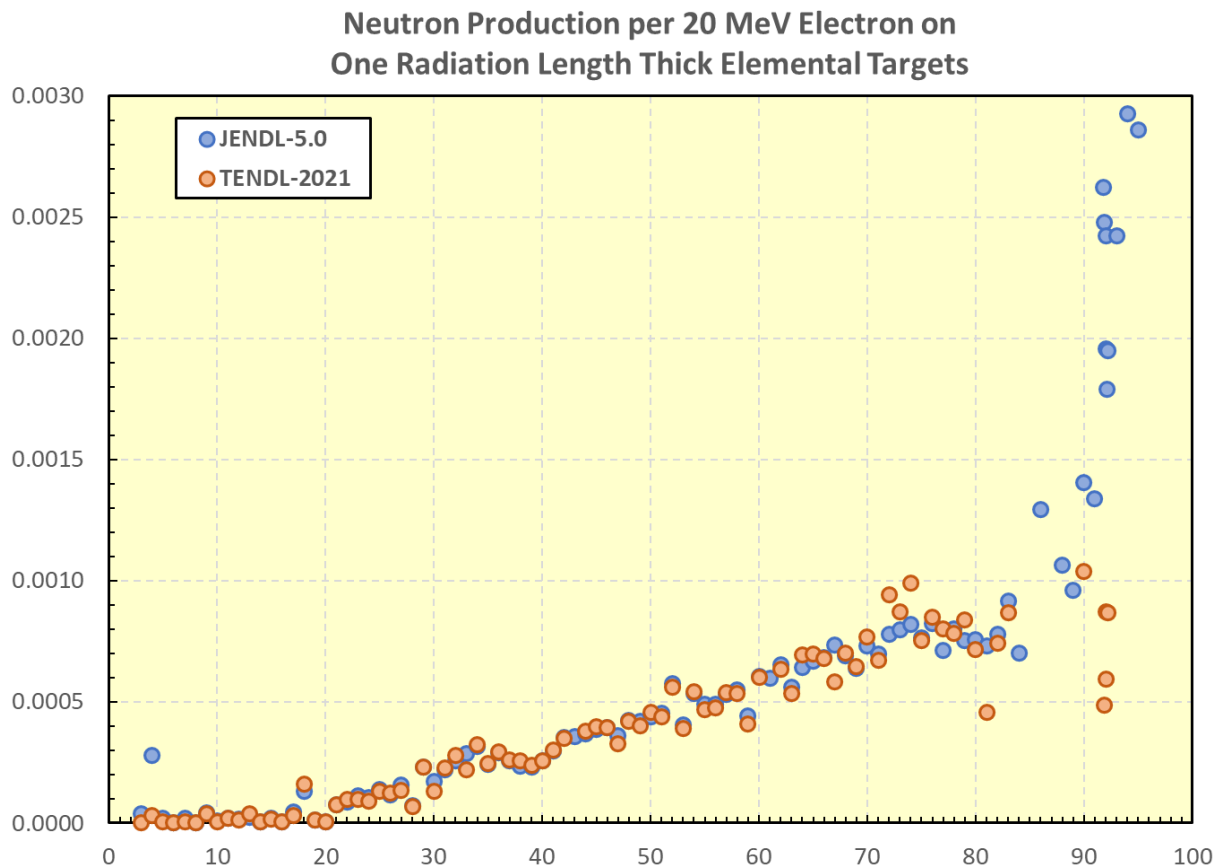


General photonuclear verification: e-p-n mode

In addition to re-analyzing the Barber and George experiment, mode *e p n* MCNP6 computer models have been modified to allow neutron production simulations to be performed for all available stable and some radioactive isotope files from Z=3 through Z=95 for JENDL-5.0 and TENDL-2021. In particular jobs utilizing the Barber and George geometry, with an elemental target thickness of one radiation length from <https://pdg.lbl.gov/2009/AtomicNuclearProperties/> and a 20 MeV monoenergetic electron beam were run. Neutron production was tallied in the same manner as used in the Barber and George analysis. Results are shown graphically.



JENDL-5.0 and TENDL-2021 results are generally in good agreement, with some notable exceptions occurring for ⁹Be and Uranium. The reasons could be that:

- The g-TENDL-2021 basic nuclear data form a fully explicit, while g-JENDL-5 form are implicit: one reaction channel and yields in mf3-mt5*mf6
- g-TENDL-2021 'fissile' do not contain nubar and that fission is stored in mf10 not mf3, when JENDL-5 includes, when necessary: mf3-mt18, mf1-mt455, mf5-mt455